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Customer-Focused Solutions

SAMPLING AND ANALYSIS PLAN

WASTE DISPOSAL, INC.
SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

Prepared for

United States Environmental Protection Agency

Prepared by

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On Behalf of

Waste Disposal Inc., Group (WDIG)

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TRC
21 Technology Drive
Irvine, California 92618
Telephone 949-727-9336
Facsimile 949-727-7399

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1.0 INTRODUCTION

1.1 INTRODUCTION

1. This Sampling and Analysis Plan (SAP) has been prepared to support sampling activities of the Remedial Action Workplan (RAWP) (TRC, 2003) and Operations Monitoring and Maintenance Plan (OMMP) for the Waste Disposal, Inc. (WDI) Superfund Site (Site) in Santa Fe Springs, California.

2. A Quality Assurance Project Plan (QAPP) has been prepared separately. The QAPP and SAP are designed to be used together. The SAP describes the objectives, locations, frequency, and parameters for sampling activities associated with site remediation and monitoring, and the QAPP provides procedures and Quality Assurance/Quality Control (QA/QC) measures that will be used to collect and analyze samples of the various Site media. Data collected from the SAP procedures will be used to assess the operational performance of the cap and containment remedy.

3. The scope and objectives of the SAP are discussed below. The SAP, QAPP and RAWP and other plans to be developed will provide the necessary guidance to complete the work required by the Consent Degree (CD) and associated Statement of Work (SOW) negotiated by the United States Environmental Protection Agency (EPA) and the Waste Disposal, Inc. Group (WDIG) (EPA, 2002a). The interrelationship of this SAP with the other workplans for this project is described in the following section.

1.2 INTEGRATION WITH OTHER REPORTS AND PLANS

1. This SAP will be implemented in conjunction with other plans required by the SOW, as follows:
   - Remedial Design Report, Plans and Specifications
   - Remedial Action Workplan (RAWP)
   - Health and Safety Plan (HASP)
   - Quality Assurance Project Plan (QAPP)
   - Construction Quality Assurance Plan (CQAP)
   - Operation Monitoring and Maintenance Plan (OMMP)

2. A general description of these documents and how they are integrated with the SAP is provided in the following sections. Figure 1.1 presents a diagram of how the management plans fit together in the sequence of performing the work.

1.2.1 REMEDIAL DESIGN REPORT, PLANS AND SPECIFICATIONS

1. The Remedial Design Report, Plans and Specifications provides the approved Design, Plans and Specifications, the description and supporting materials for the selected remedial design for the soil, subsurface gas and ground water at the WDI Site.

2. The design in the Remedial Design Report is based on the selected remedy presented in the Amended Record Of Decision ([AROD]; EPA, June 2002), appropriately configured to suit the findings of field studies subsequent to the AROD. The Remedial Design Report, Plans and Specifications have been prepared to fulfill the remedial design requirements of the Administrative Order (AO) 94-17 and Amended Administrative Order (AAO) 97-09. The approved Plans and Specifications in the Final 100% Remedial Design Report, (TRC, May 2003) addresses comments provided by EPA, and additional comments provided by the various agencies and interested parties that have participated in Technical Exchange Meetings regarding the remedial design.

1.2.2 REMEDIAL ACTION WORKPLAN (RAWP)

1. The RAWP outlines how construction activities will be implemented relative to the Design Plans and Specifications. The RAWP also describes specific QA tasks. The RAWP includes sections discussing the sequencing of construction, project team organization, equipment staging and materials handling, and procedures for addressing QA items identified in this CQAP. Also included in the RAWP are a schedule of activities and a process for making field changes to the design.

1.2.3 HEALTH AND SAFETY PLAN (HASP)

1. The HASP presents the minimum health and safety requirements and procedures that will be used during construction, operations and maintenance at the Site. The HASP will apply to both workers at the WDI Site and public exposure to releases or spills at and from facilities and environmental control systems at the Site. The HASP addresses coordination between the various parties conducting activities at the WDI Site and emergency response agencies and personnel (e.g., police departments, fire department, and other response agencies). Contractor Health and Safety Plans must meet the requirements of this document, but may also include additional health and safety procedures and requirements.

1.2.4 QUALITY ASSURANCE PROJECT PLAN (QAPP)

1. The QAPP describes quality assurance procedures and requirements for aspects of the work other than construction. This includes the laboratory procedures to be utilized, the calibration of field and laboratory equipment, QA/QC of laboratory procedures, data evaluation procedures, performance and system audits, precision and accuracy performance standards, analytical methods/control procedures, and procedures for data handling, analysis, and reporting. The QAPP also contains Standard Operating Procedures (SOPs) for performing sampling and analysis associated with the Site, including sample handling and preservation.

2. In addition, the QAPP is used together with the SAP (described below) to implement the monitoring and measurement programs, including those that will be described in the OMMP, and to assure that quality control is documented for any chemical measurements made during construction.

1.2.5 CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP)

1. The CQAP identifies QA/QC procedures to be used in construction management, including monitoring actions, reporting mechanisms, and documentation formats.

2. The CQAP also discusses how construction monitoring will be performed and how modifications to the construction procedures will be directed, as necessary, in response to monitoring actions. Further, it delineates the quality assurance methods and protocols for project personnel to ensure they have a complete understanding of monitoring, feedback, and adjustment mechanisms.

1.2.6 OPERATION MONITORING AND MAINTENANCE PLAN

1. The Long-Term Ground Water Monitoring Plan, Long-Term Soil Gas and In-Business Air Monitoring Plan, and Operations Monitoring and Maintenance Plan will likely be compiled into one reference titled OMMP. The OMMP will provide the procedures and activities necessary to operate and maintain the facilities following construction; and describe the monitoring programs, including locations, frequency, and parameters monitored, procedures for data management, data evaluation, reporting, inspections, contingency plans, procedures for repair or corrective action. The OMMP includes descriptions of various procedures, including:
   - Procedures for verifying and documenting compliance with quality control requirements.

- Operational procedures (equipment and systems startup and shutdown, normal operational procedures, and procedures for abnormal conditions).
- Procedures of operational emergency response.
- Maintenance procedures and schedules.
- Compliance and process monitoring procedures and schedules.

1.3 ORGANIZATION OF SAP

1. The remainder of this plan is organized as follows:
   - Section 2.0 - Sampling and Monitoring Objectives
   - Section 3.0 - Sampling Plans
   - Section 4.0 - Methods and Procedures
   - Section 5.0 - References

2.0 SAMPLING AND MONITORING OBJECTIVES

1. The sampling and monitoring activities described herein are to implement the plans presented in the Final (100%) Remedial Design Report (TRC, May 2003). The objectives of the sampling and monitoring are described in detail in that report and are briefly summarized below. Long-term monitoring plans will be prepared following the construction phase of the remedy, and this SAP and the associated QAPP will be amended to reflect the sampling and analysis requirements for these plans.

2. Soil gas monitoring is an integral component of the soil gas remedy. Ground water monitoring has been selected in the Amended Record of Decision (AROD) (EPA, 2002b) as the remedy for ground water. Soil gas and ground water monitoring will be conducted to assure current conditions are maintained and that the remedy is performing properly. A subset of the current networks of soil gas and ground water monitoring points will be used to fulfill performance-monitoring requirements. Performance monitoring will not be conducted in the reservoir area, and all existing soil gas and ground water monitoring wells in this area will be abandoned. Existing soil gas and ground water monitoring wells not selected for use in the postclosure monitoring systems that are located in areas outside the reservoir will remain in place. However, it is recommended that the following wells outside of the reservoir area be abandoned after the initial year of postclosure monitoring is completed:

• GW-06	• VW-10	• VW-21	• VW-47
• GW-07	• VW-11	• VW-22	• VW-50
• GW-09	• VW-12	• VW-23	• VW-52
• GW-13	• VW-13	• VW-24	• VW-53
• GW-14	• VW-14	• VW-26	• VW-54

- GW-18
- GW-19
- GW-21
- GW-28
- VW-06
- VW-16
- VW-17
- VW-18
- VW-19
- VW-20
- VW-27
- VW-28
- VW-40
- VW-43
- VW-44
- VW-57
- VW-59
- VW-60
- VW-63

One year of data obtained from these wells during the postclosure period will be sufficient to provide a snapshot of initial/baseline conditions outside the reservoir area, after which the selected subset of monitoring wells described in Section 3.0 will suffice for performance monitoring purposes.

3. The specific Site media to be sampled and analyzed include:
   - Soil Gas (Vapor Probes and Biovent Wells)
   - In-Business Air
   - Gas Collection System
   - Ground Water
   - Reservoir Leachate
   - Stormwater
   - Import fill

4. Table 2.1 summarizes the Data Quality Objectives (DQOs) for sampling the Site media listed above. The DQO process and various DQO levels are discussed in more detail in Section 4.0 of the QAPP.

3.0 SAMPLING PLANS

1. The proposed sampling plans for the various Site media are summarized in Table 2.2. Sampling locations for the various Site media (except for the gas collection system and import fill) are shown in Figures 2.1 through 2.6. The gas collection system sampling location is at the vent stack that will be located near the center of the Resources Conservation and Recovery Act (RCRA) Subtitle C cap. The import soil sample locations will be determined on a case by case basis. The sampling plans are discussed more fully in the following subsections, and would be implemented and supercede the existing monitoring program upon approval of the QAPP and this SAP.

2. The sampling efforts to be used in support of these field activities will incorporate the following strategies:
   - Follow appropriate protocols in the Health and Safety Plan (HASP) to minimize exposure to potentially contaminated media.

- Follow labeling protocols for each sample collected. Detailed protocols are provided in the QAPP.
- Place samples in laboratory-certified clean receptacles.
- Adhere to field sample collection and handling procedures as described herein, and supported by QA/QC measures provided in the QAPP.
- Follow sample packaging and Chain-of-Custody protocols to assure that samples which may be analyzed are delivered to the laboratory and stored appropriately. Detailed protocols are provided in the QAPP.

3.1 VAPOR WELL MONITORING PLAN

1. The proposed vapor well monitoring plan is based on providing representative and adequate areal coverage, based on existing site data and known conditions, for establishing compliance with performance standards, and for assessing changes in or near known noncompliance areas that may be indicative of vapor migration from these areas (see Final [100%] Design Report, TRC, May 2003).
   - Vapor Wells VW-25, -29 through -39, -41, -42 and -56 will be sampled and analyzed semiannually for Volatile Organic Compounds (VOCs) using EPA Method TO-15 and for Total Non-Methane Organic Carbon (TNMOC) using EPA Method 25C. This is part of the current soil gas monitoring program approved by the EPA in February 2001.
   - Vapor Wells VW-46, -49, -51, -55, -58, -61 and -62 will be sampled and analyzed quarterly. These wells will also be analyzed for VOCs and TNMOC using the EPA Methods mentioned above.

2. Vapor monitoring wells VW-29, -31 to -34, and -36 to -39, -41 and -42 are located at the perimeter of the Site and were selected to monitor migration of soil vapor offsite as well as towards nearby buildings, and will be used to determine compliance with Soil Gas Performance Standards listed in Table 3.1. Vapor monitoring wells VW-25, -30, -35, -46, -49, -51, -55, -56, -58, -61 and -62 are located in or near historic areas of soil vapor noncompliance. These wells were selected to monitor for occurrence and/or migration from these noncompliance areas and will not be used to determine compliance with Soil Gas Performance Standards.

3. Postclosure vapor monitoring wells are not located within the reservoir area or in locations where waste is present. Soil gas composition is not expected to change significantly as a result of remedy implementation in these areas. In addition, vapor extraction tests (TRC, 2001) indicated that the low permeability of the buried wastes (i.e., drilling muds) causes significant resistance to gas flow, making monitoring difficult.

4. Although it is anticipated that the subsurface distribution of soil gas will not change, decision making criteria regarding existing fill cover soil gas monitoring locations and soil gas controls (i.e., based on trends and/or compliance with Soil Gas Performance Standards) is proposed. Example decision criteria are presented in Figure 3.1.

5. Procedures for sampling and analysis of the vapor wells are provided in the OMMP and QAPP.

3.2 SENTINEL BIOVENT WELLS

1. The monitoring of the sentinel biovent wells is similar to that of the vapor wells described above. However, an additional objective of the monitoring is to determine the effectiveness of the biovent and gas collection system. It is important to note that the biovent wells are not constructed as monitoring systems, so data from these wells may not achieve the data quality objectives for compliance monitoring like the vapor wells do.

2. All the biovent wells will be sampled on a semiannual basis for the first year (starting at construction initiation), and on an annual basis thereafter. The samples will be analyzed for TNMOC and VOCs.

3. Procedures for sampling and analysis of the biovent wells are provided in the OMMP and QAPP.

3.3 IN-BUSINESS AIR MONITORING PLAN

1. The proposed In-Business Air Monitoring Plan is generally the same as the program that has been used for the past 2 years. The following In-Business Air Monitoring Program was approved by the EPA on February 9, 2001:
   - Sampling locations:
     - 12637B Los Nietos Road (IBM-24).
     - 12635E Los Nietos Road (IBM-03).
     - 12811E Los Nietos Road (IBM-41).
     - 9843 S. Greenleaf Avenue (IBM-50).
     - 12633 Los Nietos Road (IBM-03B).
     - 12637A Los Nietos Road (IBM-24B).
     - 12803 Los Nietos Road (IBM-27).

2. There are also two ambient air sampling stations monitored during alternating sampling events (one in June, one in December):
   - Outside the building at 126370 Los Nietos Road (IBM-24Amb)
   - Southeast corner of Los Nietos Road and Greenleaf Avenue (IBM-49)

3. Elimination of location IBM-24 is proposed for the future monitoring program as the building is also covered by location IBM-24B.

4. Sampling points at the following additional locations are proposed, as the buildings are over waste:
   - 9620 Santa Fe Springs Road (IBM-21)
   - 9630 Santa Fe Springs Road (IBM-22)
   - 9640 Santa Fe Springs Road (IBM-28)
   - 12747 Los Nietos Road (IBM-32)

5. Figure 3.2 provides example criteria that will be used to determine the frequency of in-business monitoring and to establish the need for additional potential building modifications that may be needed based on results of monitoring.

6. Procedures for sampling and analysis of the in-business air samples are provided in the OMMP and QAPP.

3.4 GAS COLLECTION MONITORING PLAN

1. The gas collection and treatment system in the reservoir area will be monitored for total gas flow and effluent gas composition. The objective of the monitoring is to establish the composition of the soil gas being collected and determine if a permit for emissions is required. If compliance testing during startup indicates emission rates of total nonmethane organic carbon greater than 116 lb/day, additional monitoring may be required for compliance with a South Coast Air Quality Management permit to operate.

2. Flow rate and composition will be monitored periodically (i.e., monthly) during active operation. Flow rate measurement equipment is included in the design of the gas collection and treatment system. The gas composition measurements will include TNMOC, methane, and oxygen (to evaluate how much air is being pulled into the system). Procedures for sampling and analysis of the gas collection system emissions are provided in the OMMP and QAPP.

3.5 GROUND WATER MONITORING PLAN

1. In accordance with Title 22 California Code of Regulations (CCR) §66265.97, requirements for a ground water detection monitoring program include background wells, point of compliance wells, and other wells suitable for early detection of a release from a waste unit. The following monitoring system is based on ground water flow conditions and the results of ground water quality evaluations performed during the investigation phase of the project:

   - **Background Wells**: A minimum of one upgradient monitoring well screened within the uppermost aquifer is needed to monitor and document the quality of ground water that has not been affected by an onsite release. Selected upgradient background wells are GW-01, GW-02 and GW-32. In addition, well GW-11 will be used to monitor the deep background cross-gradient ground water quality.
   - **Point of Compliance (POC) Wells**: A sufficient number of monitoring wells located at the POC (downgradient edge of the waste unit) and screened within the uppermost aquifer are monitored to detect potential releases and impacts to ground water from onsite waste sources. Given the hydrogeologic conditions at the Site, shallow aquifer POC wells spaced approximately 200 feet apart would be appropriate for long-term detection monitoring. The following existing downgradient monitoring wells have been selected as POC detection wells: GW-22, -23 and -26.
   - **Near-Source Detection Wells**: Depending on the location and nature of contaminant sources, detection wells near potential onsite sources of contaminants are appropriate for inclusion in the long-term monitoring program. Wells GW-10 and -33 are the near-source detection wells.
   - **Verification Wells or Guard Wells**: Monitoring of downgradient property-line verification wells or "guard" wells is warranted to assure that Site contaminants (if present in ground water) do not migrate offsite to potentially impact private or municipal water supply wells. The following existing downgradient monitoring wells will serve as verification wells: GW-27, -29 and -30.

2. Samples collected from the Site ground water monitoring wells will be collected quarterly and analyzed for VOCs, and general chemistry ground water quality parameters (i.e., chloride, sulfate, total organic carbon, pH, and total dissolved solids).

3. Semi-Volatile Organic Compounds (SVOCs) have not been detected since 1997, and metal concentrations are stable and reflect a regional background condition. Hence, SVOCs and priority pollutant metals will be analyzed every 5 years.

4. Ground water monitoring procedures are provided in the OMMP and QAPP. In addition to sampling data, management and reporting, the procedures will address evaluation of the data. In particular, responses to changes in concentration due to, for example, migration of constituents

from offsite areas or changes in Site ground water quality conditions will be addressed. Responses may include confirmatory monitoring or installation of additional monitoring systems.

3.6 RESERVOIR LEACHATE MONITORING PLAN

1. Four leachate collection points (LCPs) will be installed within the boundary of the reservoir to monitor free liquids within the zone immediately above the concrete bottom of the reservoir. The number and location of the LCPs were established based on the results on Technical Memo No. 13 (TRC, 2000).

2. The leachate levels in each well will be monitored periodically to determine the level of leachate present in the reservoir. When the level in any well reaches 12 inches or more the leachate will be removed and sent to an offsite disposal facility or treated onsite. Testing may be performed on the aqueous leachate, and periodically on NAPL that is present, to determine what, if any, constituents are present and their concentrations. This would be done to determine if the leachate must go to a disposal facility or if it can be treated onsite (i.e., granular activated carbon) and discharged. Liquid level monitoring and procedures for removing excessive liquids will be provided in the OMMP and QAPP.

3.7 STORMWATER MONITORING PLAN

1. Continued stormwater monitoring will be performed at the Site. The proposed monitoring is in compliance with the General Stormwater Permit for the City of Santa Fe Springs. Stormwater monitoring will include annual sampling of run-off from the first significant precipitation event and one additional event. Five locations will be monitored, as opposed to the currently tested two locations. Contingency plans will be described in the OMMP in case site-related constituents are detected above levels of concern. In addition, the stormwater monitoring plan will include routine inspection and maintenance of run-off control systems.

2. Procedures for sampling and analysis of the stormwater samples are provided in the QAPP.

3.8 IMPORT FILL

1. Import fill is tested primarily to assure it is free of contaminants, but also to confirm physical properties required in the specifications. One representative sample will be collected from each borrow source for analysis. The sampling location(s) may be a stockpile or a multi-point composite from the area(s) where the fill will be excavated. Additional samples may also be collected at the discretion of EPA or the WDIG Project Manager based on professional judgment.

2. The samples will be tested for Title 22 CCR Metals, Total Petroleum Hydrocarbons (TPH), VOCs, Polychlorinated Biphenyls (PCBs) and pesticides. Data from the owner of the borrow source may also be used in lieu of project-specific data as determined by the CQA Officer.

4.0 METHODS AND PROCEDURES

4.1 SAMPLE COLLECTION

1. Sample collection procedures are described in detail in the SOPs included in the QAPP. The following sections briefly describe the sample handling and analysis methods and procedures that will be implemented during the monitoring at the Site.

2. Table 4.4 of the QAPP presents the requirements for Quality Control Samples to be collected including the frequency for each of these samples.

4.2 SAMPLE CONTAINERS

1. Tables 4.2, 4.3 and 4.4 of the QAPP lists the sample container requirements appropriate for the analytical procedures. According to these procedures, each sample container will be labeled with the name of the person taking the sample, sample date and time, sample identification code, sample type, preservation method and analyses to be performed. The label will also indicate if the sample is to be held in appropriate storage by the laboratory until the geologist/engineer determines if analyses are to be performed based on initial analytical results for representative samples.

4.3 SAMPLE PRESERVATION

1. Appropriate sample containers and preservatives for the samples will be supplied by the analytical laboratory or equivalent reputable source. A listing of these containers, preservation methods, and associated holding times are presented in Tables 4.2, 4.3 and 4.4 of the QAPP.

4.4 SAMPLE SHIPMENT

1. The samples will be packed and shipped according to the detailed sample transportation procedures in SOP H provided in the QAPP.

4.5 SAMPLE DOCUMENTATION

4.5.1 SAMPLE IDENTIFICATION

1. Each sample collected will be identified as having originated from the Site by prefacing each sample designation with "WDI" (for Waste Disposal, Inc.).

4.5.2 SAMPLE LOCATION, DEPTH AND IDENTIFICATION

1. Each sample collected will be identified by an alpha and numerical code, corresponding to the sample media and location, as illustrated below:
   - WDI GW-01 - This designation refers to Well GW-01.

4.5.3 CHAIN-OF-CUSTODY

1. Chain-of-Custody procedures are discussed in Section 4.0 of the QAPP which will be used to maintain and document sample possession.

2. Detailed Chain-of-Custody procedures are presented in SOP I provided in the QAPP.

4.5.4 FIELD NOTEBOOK

1. In the field, the Field Engineer/Geologist collecting the samples will record the appropriate portions of the following information for each sample collected, as appropriate for the sample type, using indelible ink, in a field logbook or on a field data sheet.

2. Detailed field documentation procedures are presented in SOP J provided in the QAPP.

4.6 ANALYTICAL PROCEDURES

1. Procedures and methods for analyses of the samples are presented in the QAPP. A summary of the methods to be used is provided in Table 2.1.

5.0 REFERENCES

Environmental Protection Agency (EPA) *Consent Decree: USA vs. Archer Daniels Midland et al.* September 2002a.

EPA. *Amended Record of Decision (AROD) - Soils and Subsurface Gas Operable Unit.* June 2002b.

TRC. *Prefinal Remedial Action Workplan (RAWP),* Waste Disposal, Inc. Superfund Site. July 2003.

TRC. *Remedial Design Investigate Activities Summary Report (Revision 2.0).* May 2001.

TRC. *Draft TM No. 13 Reservoir Liquids Closeout Report and Addendum No. 1 Comprehensive Ground Water Quality Monitoring Plan (Revision 2.0).* Waste Disposal, Inc. Superfund Site. August 2000.

TABLE 2.1

DATA QUALITY OBJECTIVE DEVELOPMENT PROCESS
WASTE DISPOSAL, INC.

ACTIVITY	SOIL GAS MONITORING	BIOVENT MONITORING	IN-BUSINESS AIR MONITORING	GAS COLLECTION SYSTEM MONITORING	GROUND WATER MONITORING	RESERVOIR LEACHATE MONITORING	STORMWATER MONITORING	IMPORT FILL
Objectives	To fulfill performance monitoring requirements and monitor changes in soil gas conditions.	To fulfill performance monitoring requirements, verify effectiveness of Biovent Wells and monitor changes in soil gas conditions.	To fulfill performance monitoring requirements.	To fulfill performance monitoring requirements.	To fulfill performance monitoring requirements.	Waste characterization for disposal (aqueous leachate, periodically NAPL).	To fulfill performance monitoring requirements.	To assure that the import fill is free from contamination.
Intended Data Use	Confirm that soil gas is meeting Soil Gas Performance Standards listed in the Amended Record of Decision (AROD) and evaluate changes in soil gas conditions.	Confirm that soil gas is meeting Soil Gas Performance Standards listed in the AROD and evaluate changes in soil gas conditions.	Confirm the soil gas is not migrating into buildings.	Confirm that soil gas is meeting Soil Gas Performance Standards listed in the AROD.	Confirm that current ground water conditions are being maintained.	Compare with limits allowed by intended disposal facility.	Confirm that soil gas is meeting Soil Gas Performance Standards listed in the AROD.	Comparison with health based limits, such as Region IX Preliminary Remediation Goals.
Required Analytical Methods of DQO Levels	VOCs (TO-15) Methane (25C) Total Gaseous Nonmethane Organic (TGNMO) (25C)	VOCs (TO-15) Methane (25C) TGNMO (25C)	VOCs (TO-15) Methane (25C) TGNMOs (25C)	VOCs (TO-15) Methane (25C) TGNMO (25C)	VOCs (8260B) Dissolved Metals (6010B/7471B) General Parameters[1] SVOCs (8270C)	VOCs (8260B) Dissolved Metals (6010B/7471B) SVOCs 8270(C) PCBs (8082)	pH (150.1) Total Suspended Solids (TSS) (160.2) Specific Conductivity (SM2510B) Oil & Grease (413.2) CAM Metals (6010B/7471B)	CAM Metals (6010B/7471A) TPH (8015D) VOCs (8260B) PCBs (8081) Pesticides (8082)
	DQO Level 3	DQO Level 2	DQO Level 3	DQO Level 2	DQO Level 2	DQO Level 2	DQO Level 2	DQO Level 2
Contaminants of Concern	VOCs Methane TGNMOs	VOCs[2] Methane[2] TGNMOs[2]	VOCs Methane TGNMOs	VOCs[2] Methane[2] TGNMOs[2]	VOCs Metals SVOCs	VOCs Metals SVOCs PCBs	Oil & Grease Metals TSS	Metals BTEX Petroleum Hydrocarbons Chlorinated VOCs PCBs and Pesticides
Required Detection Levels	Required detection limits are provided in Table 4.2 of the QAPP	Required detection limits are provided in Table 4.2 of the Quality Assurance Project Plan (QAPP)	Required detection limits are provided in Table 4.2 of the QAPP	Required detection limits are provided in Table 4.2 of the QAPP	Required detection limits are provided in Table 4.3 of the QAPP	Required detection limits are provided in Table 4.3 of the QAPP	Required detection limits are provided in Table 4.2 of the QAPP	Required detection limits are provided in Table 4.2 of the QAPP
Action Levels/ Regulatory Standards	Soil Gas Performance Standards[2]	Soil Gas Performance Standards[2]	Indoor Air Threshold Levels[2]	AQMD Emissions Limits	None	None	MCLs	None[3]
Sampling Points	Vapor wells listed in Sampling and Analysis Plan (SAP)	All biovent wells	Ten Buildings	All gas collection sampling points	Ground water wells listed in SAP	All leachate collection points (LCPs)	Stormwater Monitoring Points	One sample per borrow source
Critical Sampling	Vapor wells listed in SAP	All biovent wells	Ten Buildings	All gas collection sampling points	Ground water wells listed in SAP	All LCPs	Stormwater Monitoring Points	None

29022401/Reports/SAP (11/13/03/ms)

(1) General parameters include pH (SM4500 H, B), Chloride (300.0), sulfate (300.0) and total dissolved solids (160.1).

(2) See Table 3.1.

(3) Results should be compared to risk-based screening values, such as the Region IX Industrial Preliminary Remediation Goals.

TABLE 2.2

SUMMARY OF SAMPLING PLANS FOR THE VARIOUS SITE MEDIA
WASTE DISPOSAL SUPERFUND SITE

SITE MEDIA	SAMPLING AND ANALYSIS PLANS
Soil Gas Vapor Wells	• Sampling locations are shown in Figure 2.1. • Soil Gas wells: VW-46, VW-49, VW-51, VW-55, VW-58, VW-61 and VW-62 will be sampled quarterly. • Soil Gas wells: VW-25, VW-29, VW-30, VW-31, VW-32, VW-33, VW-34, VW-35, VW-36, VW-37, VW-38, VW-39, VW-41, VW-42 and VW-56 will be sampled semi-annually. • Samples will be analyzed for methane, total gaseous non-methane organics (TGNMO) and VOCs.
Biovent Wells	• Sampling locations are shown in Figure 2.2. • Samples will be collected from each of the 25 biovent wells on a semi-annual basis for the first year and then on an annual basis for years 2 through year 30. • Samples will be analyzed for methane, TGNMO and VOCs.
In-Business Air	• Sampling locations (see Figure 2.3): - 12635E Los Nietos Road (IBM-03) - 12633 Los Nietos Road (IBM-03B) - 9620 Santa Fe Springs Road (IBM-21) - 9630 Santa Fe Springs Road (IBM-22) - 12637A Los Nietos Road (IBM-24B) - 9640 Santa Fe Springs Road (IBM-28) - 12747 Los Nietos Road (IBM-32) - 12803 Los Nietos Road (IBM-37) - 12811E Los Nietos Road (IBM-41) - 9843 S. Greenleaf Avenue (IBM-50) • Sample frequency is initially quarterly, then according to the decision matrix in Figure 3.2. • Samples will be analyzed for methane, TGNMO and VOCs.
Soil Gas Control System	• Flow rate and composition will be monitored monthly while the system is actively operating. Gas composition measurement will include TGNMO, methane and oxygen. • Sampling will be quarterly for the first year and then samples will be collected on an annual basis from year 2 through year 30. • Samples will be analyzed for methane, oxygen, TGNMO and VOCs.
Ground Water	• Ground Water wells: GW-01, GW-02, GW-10, GW-11, GW-22, GW-23, GW-26, GW-27, GW-29, GW-30, GW-32 and GW-33 will be sampled. • Wells will be sampled quarterly until at least 1 year after completion of construction. Afterwards sampling frequency will be reduced. • Quarterly samples will be analyzed for volatile organic compounds (VOCs) and general chemistry parameters (i.e., chloride, sulfate, total organic carbon, pH, and total dissolved solids). • Semi-volatile organic compounds (SVOCs) and metals will be analyzed every 5 years.

TABLE 2.2

SUMMARY OF SAMPLING PLANS FOR THE VARIOUS SITE MEDIA
WASTE DISPOSAL SUPERFUND SITE
(Continued)

SITE MEDIA	SAMPLING AND ANALYSIS PLANS
Reservoir Leachate	• Sampling locations are shown in Figure 2.5. • During the first three months after remedy construction, liquid levels in the leachate collections points will be monitored daily initially with reductions in frequency if the accumulation of liquids is less than 6 inches per day. If 12 or more inches of liquids are observed, the liquids will be removed . • The collected leachate from all four LCPs will be analyzed for VOCs, polychlorinated biphenyls (PCBs), Metals, total petroleum hydrocarbons (TPH) and pH to determine the disposal criteria.
Stormwater	• Stormwater sampling locations are shown on Figure 2.6. • Stormwater monitoring includes annual sampling of run-off from first significant precipitation event of the rainy season and one additional event. • Samples will be analyzed for pH, total suspended solids (TSS), specific conductivity, oil & grease and metals.
Imported Fill	• A single representative sample will be collected from each borrow source for imported fill. • Imported soil will be examined and will meet the following criteria(1): - Free of chemical contaminants including Title 22 metals, petroleum hydrocarbons, benzene, toluene, xylene, ethyl benzene, PCBs, pesticides, herbicides, and chlorinated VOCs. - United Soil Classification System (USCS) classification CL, ML, SC, SM, GC, GM. - Maximum particle size of 2 inches. - Between 12 and 70 percent passing No. 200 sieve. - Plasticity Index ±15. - Free of organics, roots, wood, peat, cinders, deleterious matter or other rubbish.

30747/Reports/SAP (8/26/03/rm)

(1) Testing data provided by the prospective borrow source(s) may be used in lieu of project specific samples on approval by the CQA officer.

TABLE 3.1

GAS STANDARDS FOR CHEMICALS OF CONCERN WASTE DISPOSAL, INC. SUPERFUND SITE

COMPOUND	SOIL GAS PERFORMANCE STANDARD[1] (ppbv)	INDOOR AIR THRESHOLD LEVELS[2] (ppbv)
Benzene	10	2.0
Carbon Tetrachloride	21	0.68
Chloroform	20	3.4
1,2-Dibromoethane	1	0.06
1,2-Dichloroethane	20	3.6
cis-1,2-Dichloroethene	180	18.6
1,1-Dichloroethene	100	53[3]
1,2-Dichloropropane	20	1.86
trans-1,2-Dichloroethene	400	36.8
Ethylbenzene	5,000	490
Tetrachloroethene	500	10.6
Toluene	2,000	212.0
1,1,1-Trichloroethane	3,600	368.0
Trichloroethene	200	8.2[4]
Vinyl Chloride	10	0.25
m,p-Xylene	4,000	142.8
o-Xylene	4,000	142.8
Methane	1.25% (near buildings) 5% (site perimeter)	1.25%

29022401/Rpts/SAP (11/12/03/ms)

(1) EPA, Amended Record of Decision, Waste Disposal, Inc. June 2002.
(2) CDM Federal Programs Corporation, Subsurface Gas Contingency Plan, Waste Disposal, Inc. Superfund Site, July 1997.
(3) Developed separately by EPA (i.e., subsequent to the *Subsurface Gas Contingency Plan).*
(4) EPA Region 9 is considering changing the PRG for trichlorethene which would decrease the Indoor Air Threshold Levels (IATL) from 8.2 to 0.9.

Note: -- No level indicated for this compound.

TABLE 3.1

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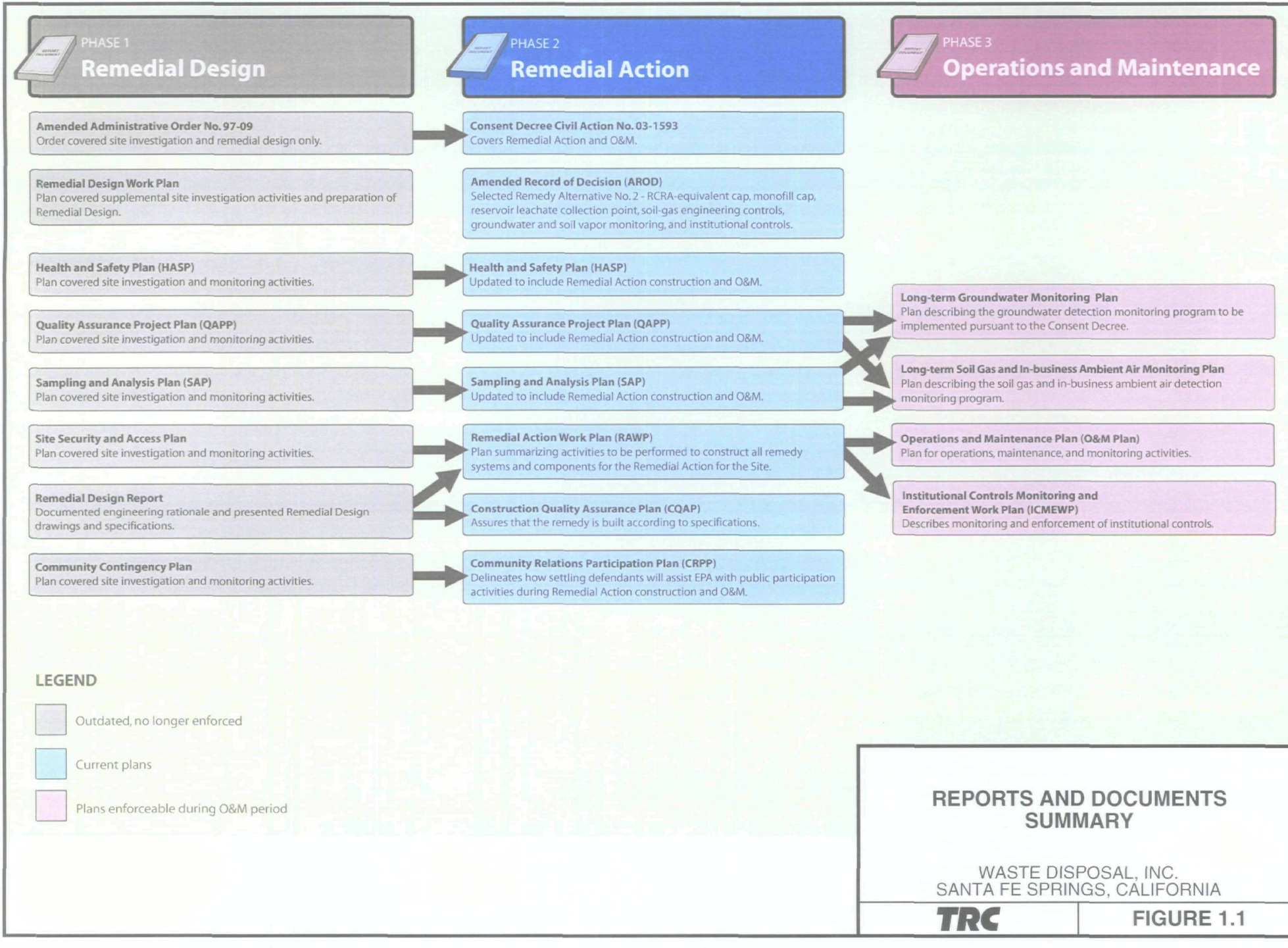
Note: -- No level indicated for this compound.

FIGURES



REPORTS AND DOCUMENTS SUMMARY

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 1.1

30747SG-29 REV 08/27/03

VW-41
VW-42
VW-39
VW-29
VW-46
VW-38
VW-51
VW-30
VW-37
VW-62
VW-61
VW-36
VW-55
VW-49
VW-58
VW-31
VW-56
VW-25
VW-35
VW-34
VW-33
VW-32

LEGEND

- VAPOR WELL LOCATIONS TO BE MONITORED
- SOIL GAS NONCOMPLIANCE AREA (LATERAL EXTENTS ARE APPROXIMATE)
- EXISTING BUILDING SLAB
- LIMIT OF WASTE

N

0 150 300 FEET
SCALE

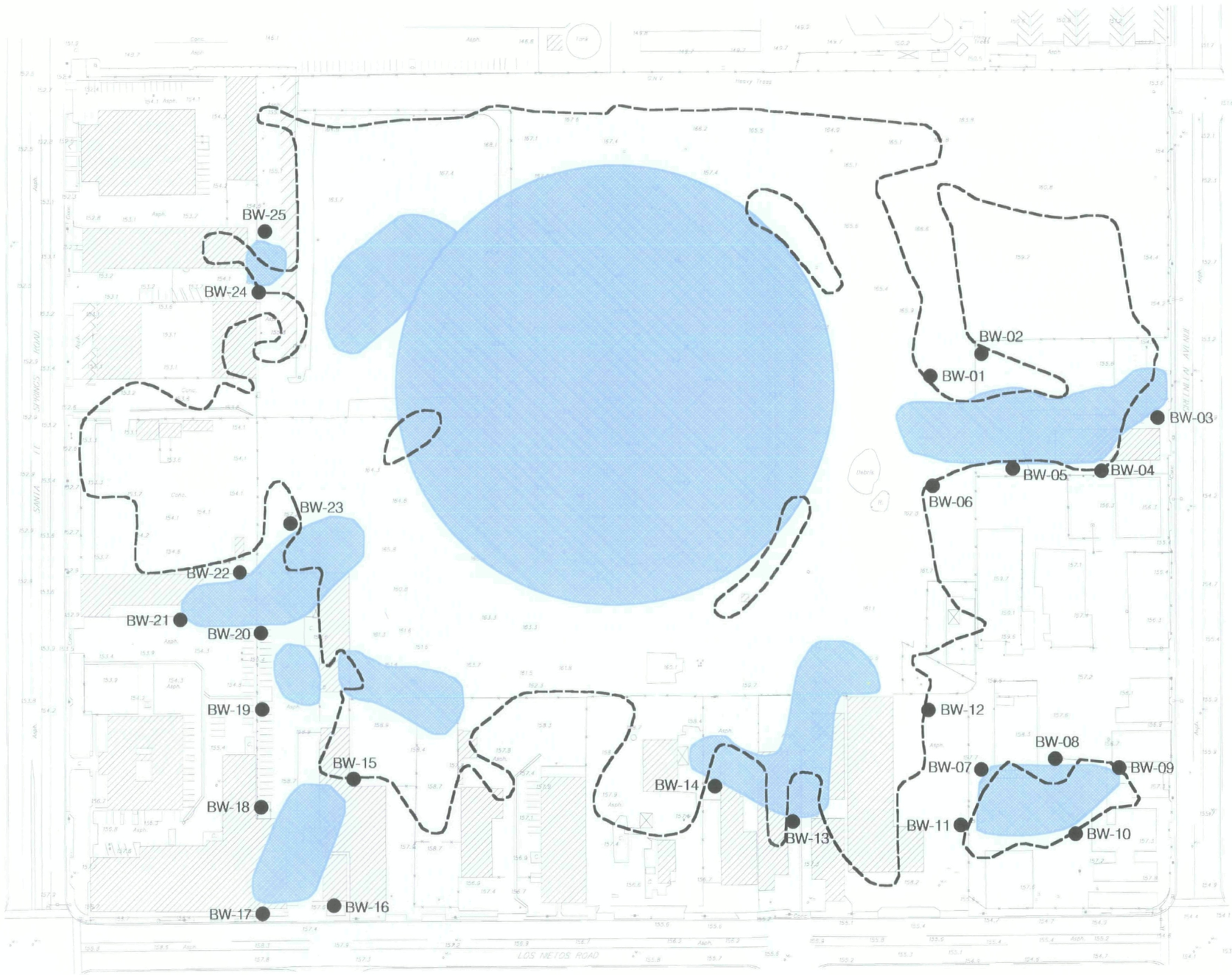
REFERENCE: TOPOGRAPHY BY NUNEZ ENGINEERING (DECEMBER 1998)

LOCATIONS OF VAPOR MONITORING WELLS

WASTE DISPOSAL INC. SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.1**

30747SG-30 REV 08/27/03



LEGEND

- BIOVENT WELL
- SOIL GAS NONCOMPLIANCE AREA (LATERAL EXTENTS ARE APPROXIMATE)
- EXISTING BUILDING SLAB
- LIMIT OF WASTE

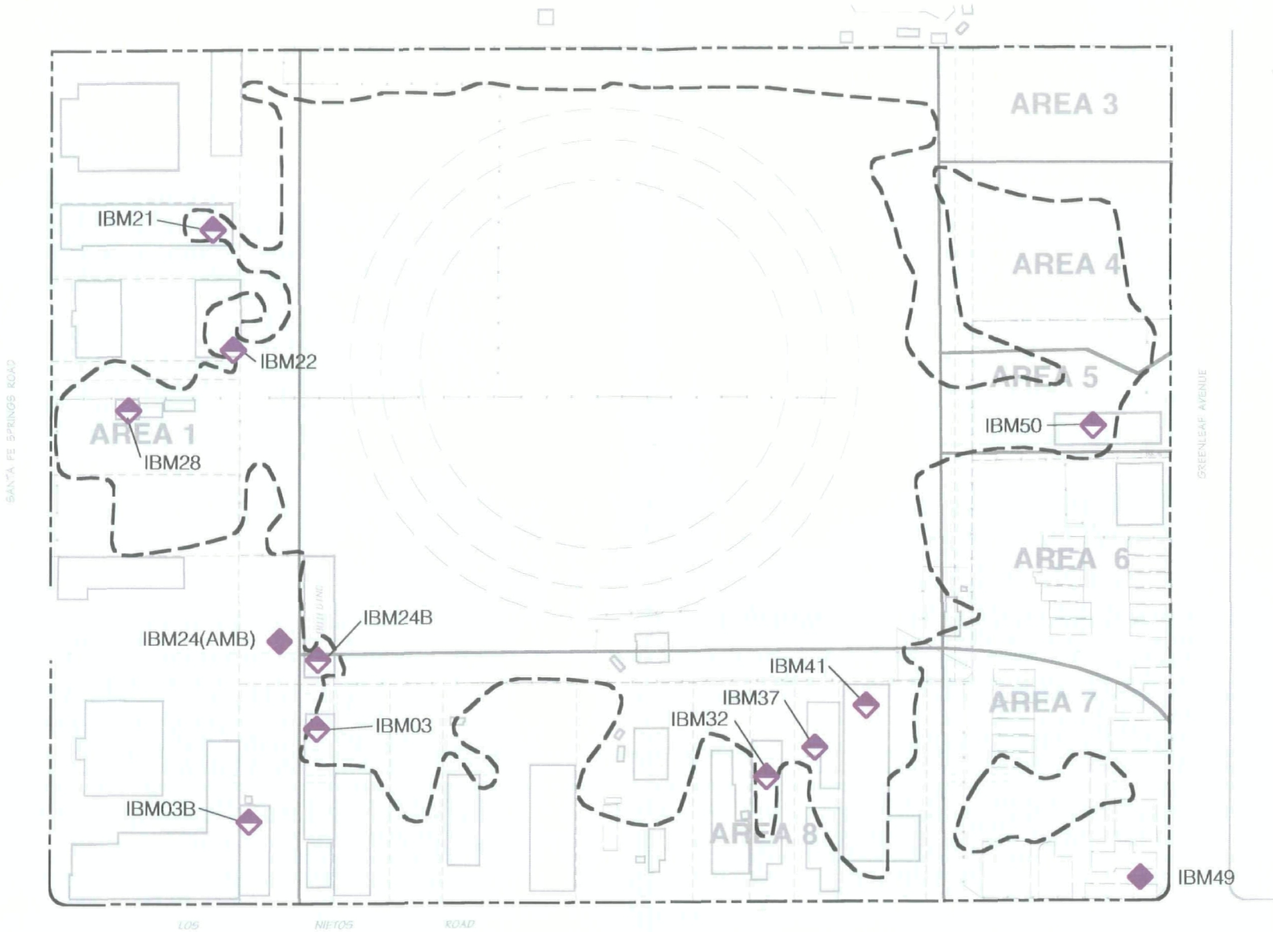
0 150 300 FEET
SCALE

REFERENCE: TOPOGRAPHY BY NUNEZ ENGINEERING (DECEMBER 1998)

LOCATIONS OF BIOVENT WELLS

WASTE DISPOSAL INC. SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.2**



LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- LIMIT OF WASTE
- IN-BUSINESS AIR MONITORING LOCATION
- AMBIENT MONITORING LOCATIONS

0 200 400 FEET
SCALE

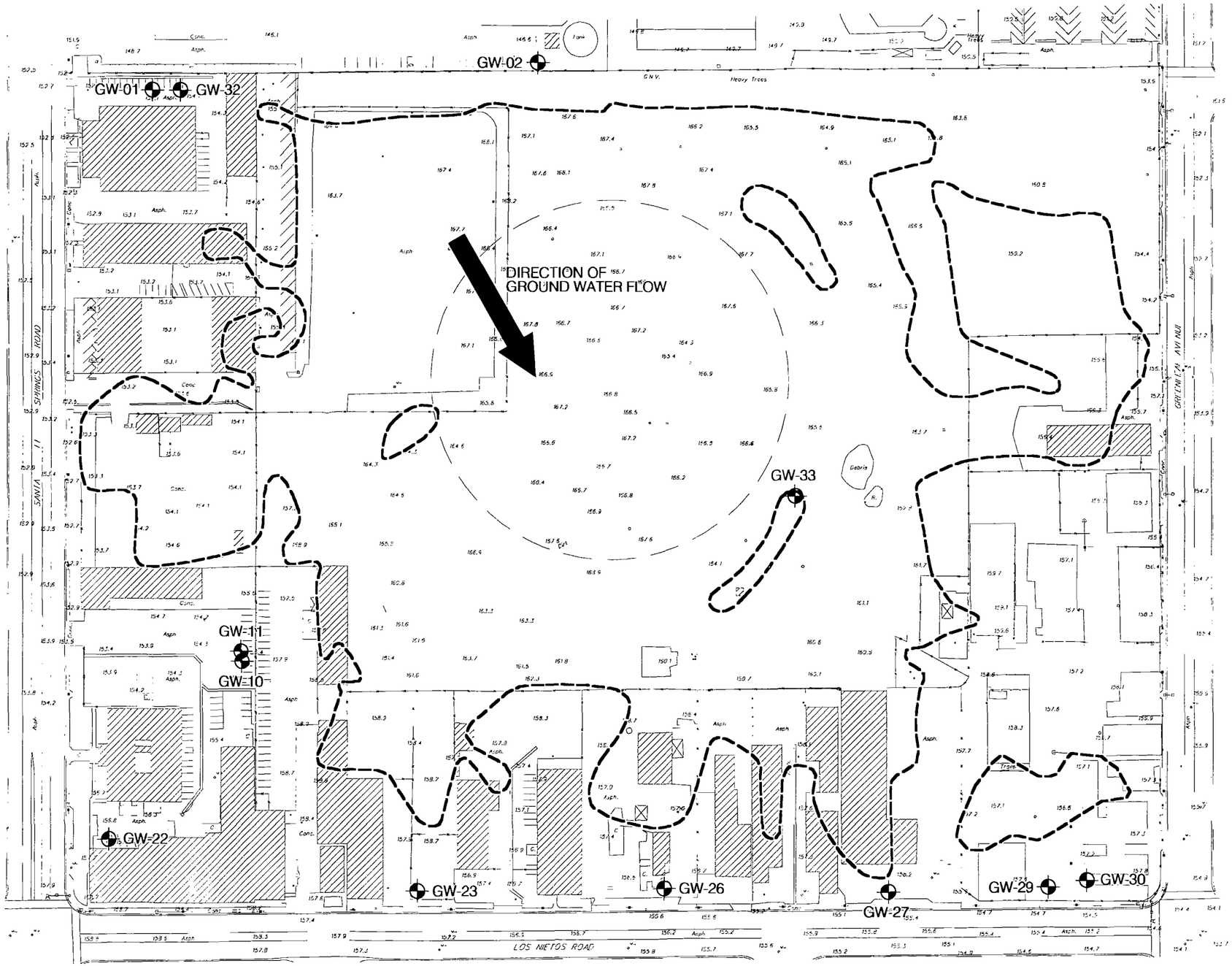
IN-BUSINESS AIR MONITORING LOCATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.3

30747SG-28 REV.08/27/03



LEGEND

- GROUND WATER WELL TO BE MONITORED
- EXISTING BUILDING SLAB
- LIMIT OF WASTE

N

0 150 300 FEET

SCALE

REFERENCE: TOPOGRAPHY BY NUNEZ ENGINEERING (DECEMBER 1998)

LOCATIONS OF GROUND WATER MONITORING WELLS

WASTE DISPOSAL INC. SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 2.4**

30747SG-27 REV.08/14/03

LC-1
LC-2
LC-3
LC-4

SANTA FE SPRINGS ROAD

CARMENITA AVENUE

LOS NIETOS ROAD

LEGEND

- ▲ LEACHATE COLLECTION POINTS
- EXISTING BUILDING SLAB
- LIMIT OF WASTE

N

0 150 300 FEET

SCALE

REFERENCE: TOPOGRAPHY BY NUNEZ ENGINEERING (DECEMBER 1998)

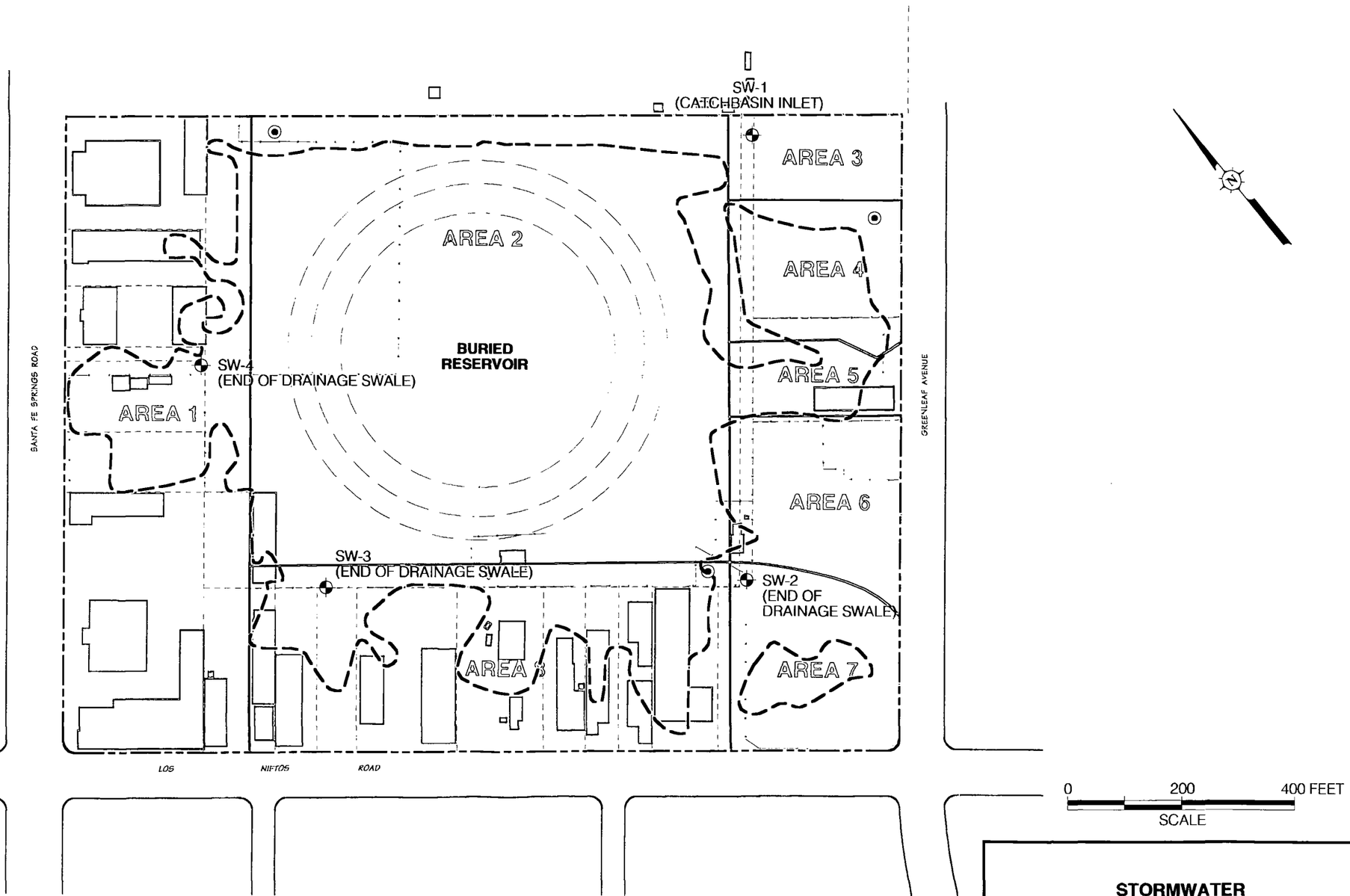
LOCATIONS OF LEACHATE COLLECTION POINTS

WASTE DISPOSAL INC. SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.5

30747SG-31 REV. 08/27/03



LEGEND

- SITE BOUNDARY
- AREA BOUNDARY
- WASTE MATERIAL DELINEATION
- FENCE
- EXISTING BUILDING
- MONITORING POINT PRIOR TO AND DURING CONSTRUCTION (EXISTING LOCATIONS)
- MONITORING POINT AFTER CONSTRUCTION IS COMPLETE

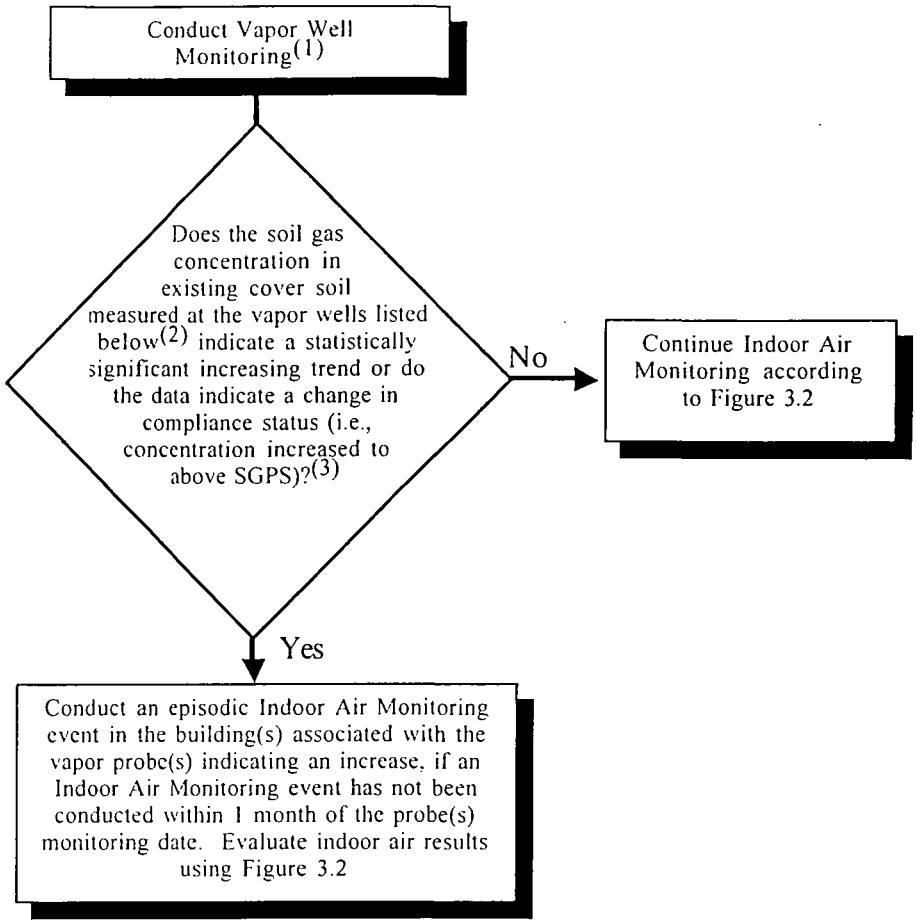
0 200 400 FEET
SCALE

STORMWATER MONITORING LOCATIONS

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 2.6



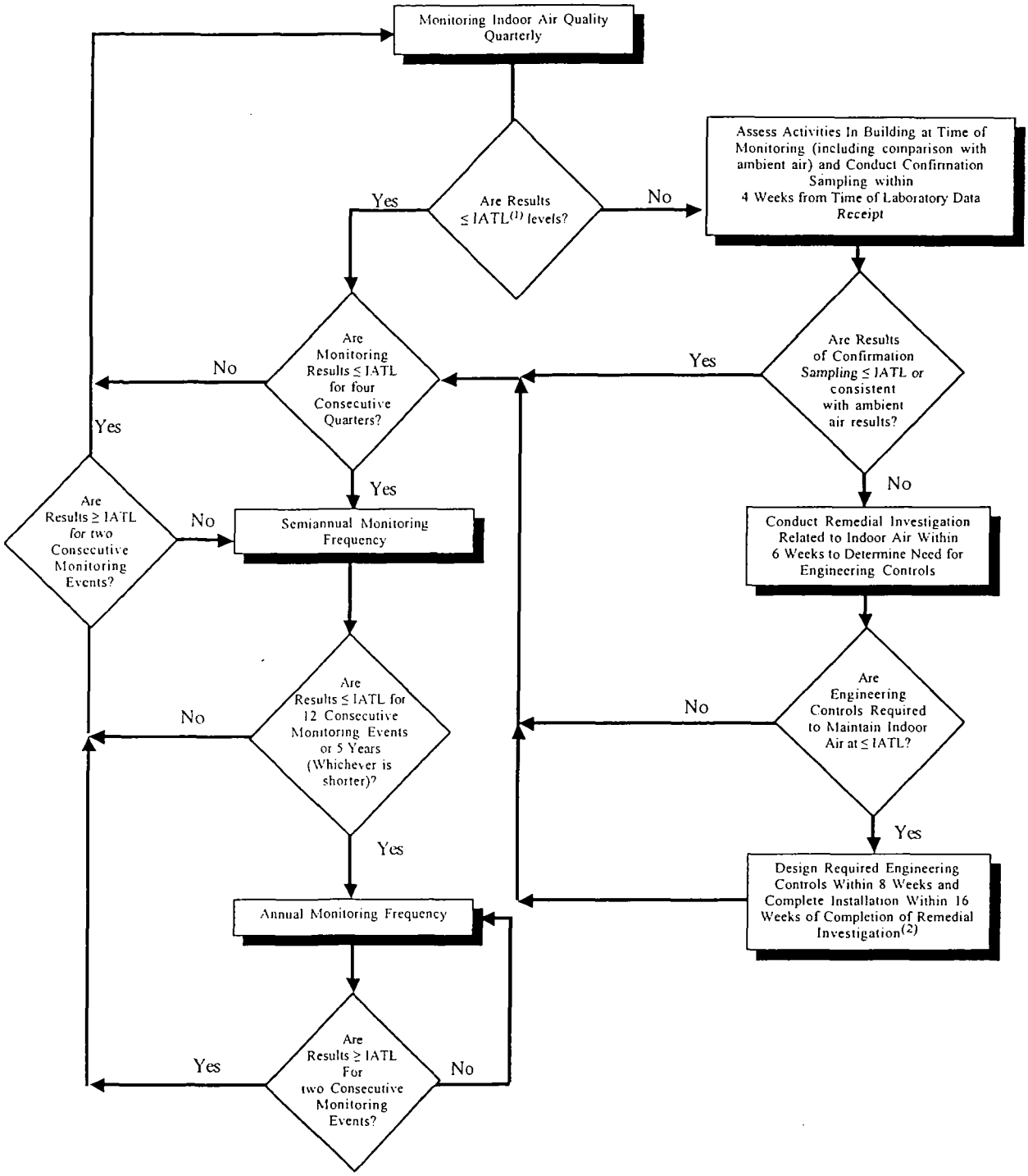
PARCEL NO.	PARCEL ADDRESS	VAPOR WELL NUMBER(4)
021	9620 Santa Fe Springs Road	VW-46
022	9630 Santa Fe Springs Road	VW-46
024	12637 Los Nietos Road	VW-61 and VW-62
003	12635 Los Nietos Road	VW-61
012	12639 Los Nietos Road	VW-60 or VW-61 if VW-60 is abandoned
044	12715-17 Los Nietos Road	VW-49
043	12723 Los Nietos Road	VW-58 and -59
042	12741 Los Nietos Road	VW-58
032	12747 Los Nietos Road	VW-55 and -56
037	12801 Los Nietos Road; 12803 Los Nietos Road	VW-55 and -56
041	12807B, 12807A, 12809, 12811, and 12813 Los Nietos Road	VW-54 or VW-55 and -56 if VW-54 is abandoned
050	9843 Greenleaf Avenue	VW-30 and -51

(1) Figure 3.1 is to be used to evaluate vapor probe readings subsequent to cover installation.
(2) The following building(s) are to be monitored for indoor air quality based on the associated probe(s) having a statistically significant increasing trend.
(3) SGPS = Soil Gas Performance Standard. See Table 3.1.
(4) Only the specific vapor probe installed in existing cover soil will be used in these determinations.
(5) Final decision matrix will be issued in the OMMP and may include additional actions based on the concentration of the exceedance, (e.g., as discussed in the Subsurface Gas Contingency Plan, CDM Federal Programs Corporation, July 17, 1997).

EXAMPLE DECISION MATRIX CRITERIA FOR VAPOR PROBE MONITORING DATA(5)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.1**



(1) IATL = Indoor Air Threshold Levels (see Table 3.1).

(2) Required engineering controls may include but are not limited to soil vapor extraction system outside building, passive or active foundation vent system, or HVAC system improvements.

(3) Final decision matrix will be issued in the OMMP and may include additional actions based on the concentration of the exceedance, e.g., as discussed in the Subsurface Gas Contingency Plan, CDM Federal Programs Corporation, July 17, 1997.

EXAMPLE DECISION MATRIX FOR INDOOR AIR MONITORING
(See Footnote 3)

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC | **FIGURE 3.2**

TRC

Customer-Focused Solutions